

Claims

[c1]

A method comprising:

providing a contact lens having a pupil region and a generally annular-shaped iris region surrounding the pupil region, the iris region being adapted to at least partially cover a wearer's iris when the wearer is wearing the contact lens;

providing a printer assembly having an inkjet print head;

using the printer assembly to deposit at least one colorant on the iris region of the contact lens in a manner to alter the appearance of the iris of the wearer when the wearer is wearing the contact lens.

[c2]

A method as set forth in claim 1 wherein the step of using the printer assembly to print comprises:

using the inkjet print head to deposit at least one colorant on a transfer surface; and

transferring the colorant from the transfer surface to the iris region of the contact lens.

[c3]

A method as set forth in claim 2 wherein:

using the inkjet print head to deposit at least one colorant on a transfer surface causes the at least one colorant to be deposited on the transfer surface in a first colorant pattern; and

transferring the colorant from the transfer surface to the iris region of the contact lens causes the at least one colorant to be deposited on the iris region of the contact lens in a second colorant pattern.

[c4]

A method as set forth in claim 3 wherein the second colorant pattern is different than the first colorant pattern.

[c5]

A method as set forth in claim 4 wherein the second colorant pattern a mirror image of the first colorant pattern.

[c6]

A method as set forth in claim 3 wherein the at least one colorant is directly deposited on the transfer surface via the inkjet print head.

[c7]

A method as set forth in claim 2 wherein the transfer surface comprises a pad printing pad.

[c8]

A method as set forth in claim 1 wherein the step of using the printer assembly to deposit at least one colorant on the iris region of the contact lens comprises using the printer assembly to deposit at least one colorant on the iris region of the contact lens in a manner such that a multi-color image is on the iris region and the pupil region is non-opaque.

[c9]

A method as set forth in claim 8 wherein the image comprises an opaque pattern having a plurality of distinct elements.

[c10]

A method as set forth in claim 1 wherein the step of using the printer assembly to deposit at least one colorant on the iris region of the contact lens comprises using the printer assembly to tilt the contact lens both laterally and longitudinally while depositing at least one colorant on the iris region of the contact lens.

[c11]

A colored contact lens comprising a non-opaque pupil region, a generally annular-shaped iris region surrounding the pupil region and adapted to cover at least 80% of a wearer's iris when the wearer is wearing the contact lens, at least first, second, third, and fourth colored patterns on the iris region, the first colored pattern being of a first color, the second colored pattern being of a second color different than the first color, the third colored pattern being of a third color different than the first and second colors, the fourth colored pattern being of a fourth color different than the first, second and third colors, the colored patterns being arranged on the iris region in a manner to form an opaque composite pattern on the iris region, at least approximately 85% of the composite pattern being no more than one color layer thick, the composite pattern being configured and arranged to give the appearance of a natural iris when the wearer is wearing the colored contact lens, thereby providing a lens capable of altering the appearance of the iris of the wearer when the wearer is wearing the contact lens.

[c12]

A colored contact lens as set forth in claim 11 wherein at least approximately 95% of the composite pattern is no more than one color layer thick.

[c13]

A colored contact lens as set forth in claim 11 wherein no portion of the composite pattern is more than one color layer thick.

[c14]

A colored contact lens as set forth in claim 11 wherein the first colored pattern comprising a plurality of distinct elements, and the second colored pattern comprising a plurality of distinct elements.

[c15]

A colored contact lens as set forth in claim 11 wherein the opaque composite pattern covers at least 75% of the iris region.

[c16]

A colored contact lens comprising a non-opaque pupil region, a generally annular-shaped iris region surrounding the pupil region and adapted to cover at least 80% of a wearer's iris when the wearer is wearing the contact lens, at least first, second, third, and fourth colored patterns on the iris region, the first colored pattern being of a first color, the second colored pattern being of a second color different than the first color, the third colored pattern being of a third color different than the first and second colors, the fourth colored pattern being of a fourth color different than the first, second and third colors, the colored patterns being arranged on the iris region in a manner to form an opaque composite pattern on the iris region in which no portion of the composite pattern is more than two color layers thick, the composite pattern being configured and arranged to give the appearance of a natural iris when the wearer is wearing the colored contact lens, thereby providing a lens capable of altering the appearance of the iris of the wearer when the wearer is wearing the contact lens.

[c17]

A colored contact lens as set forth in claim 16 wherein the composite pattern covers at least 75% of the iris region.

[c18]

A colored contact lens comprising a non-opaque pupil region, a generally annular-shaped iris region surrounding the pupil region and adapted to cover at least 80% of a wearer's iris when the wearer is wearing the contact lens, at least first, second, third, and fourth colored patterns on the iris region, the first colored pattern being of a first

color, the second colored pattern being of a second color different than the first color, the third colored pattern being of a third color different than the first and second colors, the fourth colored pattern being of a fourth color different than the first, second and third colors, the first colored pattern comprising a plurality of spaced-apart elements, the second colored pattern comprising a plurality of spaced-apart elements, the colored patterns being arranged on the iris region in a manner to form an opaque composite pattern covering at least 75% of the iris region, at least approximately 85% of the composite pattern being no more than two color layers thick, the composite pattern being configured and arranged to give the appearance of a natural iris when the wearer is wearing the colored contact lens, thereby providing a lens capable of altering the appearance of the iris of the wearer when the wearer is wearing the contact lens.

[c19]

A colored contact lens comprising a non-opaque pupil region, a generally annular-shaped iris region surrounding the pupil region and adapted to cover at least 80% of a wearer's iris when the wearer is wearing the contact lens, at least first, second, third, and fourth colored patterns on the iris region, the first colored pattern being of a first color, the second colored pattern being of a second color different than the first color, the third colored pattern being of a third color different than the first and second colors, the fourth colored pattern being of a fourth color different than the first, second and third colors, the colored patterns being arranged on the iris region in a manner to form an opaque composite pattern on the iris region in which no portion of the first colored pattern overlaps with the second and third colored patterns and no portion of the second colored pattern overlaps with the third colored pattern, the composite pattern being configured and arranged to give the appearance of a natural iris when the wearer is wearing the colored contact lens, thereby providing a lens capable of altering the appearance of the iris of the wearer when the wearer is wearing the contact lens.

[c20]

A colored contact lens as set forth in claim 19 wherein no portion of the composite pattern is more than two color layers thick.

[c21]

A colored contact lens as set forth in claim 19 wherein the composite pattern covers at least 75% of the iris region.

[c22]

A colored contact lens comprising a non-opaque pupil region, a generally annular-shaped iris region surrounding the pupil region and adapted to cover at least 80% of a wearer's iris when the wearer is wearing the contact lens, a multi-color composite pattern on the iris region, the composite pattern comprising a plurality of distinct

elements, each of at least 25% of the elements having a surface area no greater than 6000 square microns.

[c23]

A colored contact lens as set forth in claim 22 wherein each of at least 25% of the elements have a surface area no greater than 4000 square microns.

[c24]

A colored contact lens as set forth in claim 22 wherein each of at least 25% of the elements have a surface area no greater than 2000 square microns.

[c25]

A colored contact lens as set forth in claim 22 wherein each of at least 25% of the elements have a surface area no greater than 1000 square microns.

[c26]

A colored contact lens as set forth in claim 22 wherein the composite pattern covers at least 30% of the iris region.

[c27]

A colored contact lens as set forth in claim 22 wherein the composite pattern covers at least 50% of the iris region.

[c28]

A colored contact lens as set forth in claim 22 wherein the composite pattern comprises at least 800 distinct elements.

[c29]

A colored contact lens as set forth in claim 22 wherein the composite pattern comprises at least 3000 distinct elements.

[c30]

A colored contact lens as set forth in claim 22 wherein each of at least 20% of the elements are within 50 μm of an adjacent one of the elements.

[c31]

A colored contact lens comprising a non-opaque pupil region, a generally annular-shaped iris region surrounding the pupil region and adapted to cover at least 80% of a wearer's iris when the wearer is wearing the contact lens, a multi-color composite pattern on the iris region, the composite pattern comprising a plurality of distinct elements, each of at least 20% of the elements being within 50 μm of an adjacent one of the elements.

[c32]

A colored contact lens as set forth in claim 31 wherein each of at least 20% of the elements are within 30 μm of an adjacent one of the elements.

[c33]

A colored contact lens as set forth in claim 31 wherein each of at least 20% of the elements are within 10 μm of an adjacent one of the elements.

[c34]

A colored contact lens as set forth in claim 31 wherein each of at least 30% of the elements are within 10 μm of an adjacent one of the elements.

[c35]

A colored contact lens as set forth in claim 31 wherein the composite pattern comprises at least 800 distinct elements.

[c36]

A colored contact lens as set forth in claim 35 wherein the composite pattern covers at least 80% of the iris region.

[c37]

A colored contact lens as set forth in claim 31 wherein the composite pattern comprises at least 3000 distinct elements.

[c38]

A colored contact lens as set forth in claim 31 wherein each of at least 25% of the elements have a surface area no greater than 2000 square microns.

[c39]

A colored contact lens comprising a non-opaque pupil region, a generally annular-shaped iris region surrounding the pupil region and adapted to cover at least 80% of a wearer's iris when the wearer is wearing the contact lens, a multi-color composite pattern on the iris region, the composite pattern comprising at least 3000 distinct elements.

[c40]

A colored contact lens as set forth in claim 39 wherein each of at least 20% of the elements are within 50 μm of an adjacent one of the elements.

[c41]